

Build a Greene and Greene Blanket Chest



It's all about the details.
Our expert shows
how to get them right

BY DARRELL PEART

I've long been drawn to the work of the brothers Henry Mather Greene and Charles Sumner Greene, the early 20th-century architects who designed and furnished some of the country's most important Arts and Crafts bungalows. Their furniture stands apart for its elegant fusion of Japanese-inspired detail with solid, practical Craftsman design.

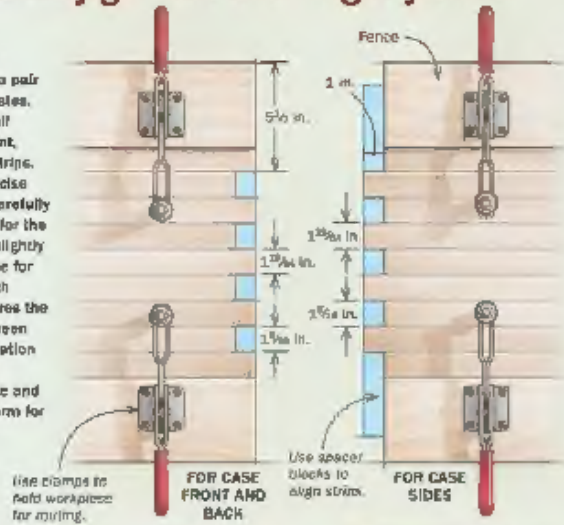
The brothers designed blanket chests for two California homes—the Pratt House in Ojai and the Thurner House in Berkeley. When I designed my chest, I used details from each of these two pieces, including the proud, pegged finger joints and the lid with raised breadboard ends, along with one from a smaller piece by the Greenes—the Ford House letter case. On that piece, two leather straps wrap the bottom so it won't scratch the table it sits on. I thought a similar detail, rendered in wood, could lend visual weight to my chest's base. Taken together, those details make for a fun and beautiful project.



Router jigs nail the finger joints

MAKE TWO TEMPLATES

Pezart glues up a pair of router templates, one for each half of the finger joint, from plywood strips. To ensure a precise friction fit, he carefully mills the strips for the finger sockets slightly wider than those for the fingers. Each template captures the workpiece between a pair of registration blocks that are screwed in place and provide a platform for toggle clamps.



Edge-glue the strips. To assemble each template, clamp two straight cuts to the glue-up surfaces at a right angle to create a square reference corner (above). Spacer blocks help ensure that the finger sockets are uniformly deep. Apply clamping pressure on top of the glue-up (left) so the surfaces are flush for smooth router travel.

Cut the joints



Route the fingers. After removing the bulk of the waste with a jigsaw, clamp the workpiece into the template jig and use a $\frac{1}{4}$ -in.-dia. flush-trimming bit to complete the finger pattern on the end of each piece.



The case comes together with finger joints

To create the large finger joints on the case, make a pair of routing templates by edge-gluing strips of $\frac{1}{4}$ -in. Baltic birch plywood or MDF. For a snug fit, cut the strips for the template fingers about $\frac{1}{8}$ in. narrower than the strips for the gaps.

After the glue dries, the templates may need flattening with coarse-grit sandpaper. I use a wide-belt sander here, but a belt sander would also work. Then attach the registration blocks and toggle clamps that lock in the workpiece. Be sure to cut some test joints before using the templates on your project.

To join the joinery, mark the finger locations on the blanks and jigsaw away the bulk of the waste between them. Clamp each blank to the template and route, using a $\frac{1}{4}$ -in.-dia. spiral flush-trimming bit with a bottom bearing. This leaves the inside corners on each finger with a $\frac{1}{4}$ -in. radius. To create a matching $\frac{1}{4}$ -in. roundover on the mating fingers, remove the workpiece from the template and route the finger edges with a miniature bearing, $\frac{1}{4}$ -in.-radius roundover bit (Amara M00112). The joints should close on dry-fit with medium clamping pressure. If not, carefully clean up the inside corners with a rat-tail file.

The finger joints are reinforced with screws hidden by square ebony plugs. To cut the square holes, I use a hollow punch from Lee Valley. To help align the holes, I clamp a straightedge to the workpiece. After laying out the peg locations, register the punch against the straightedge and strike it with a steel hammer to set it in place. Then use a twist bit inside the punch and drill about $\frac{1}{8}$ in. deep. Remove the bit and punch the tool to the depth of the drilled hole. You can re-insert the bit to remove debris, but don't make the hole any deeper.

Now sand the case parts to P220-grit. I bring the case together in stages, first assembling the two opposing



Soften the edges. Peart uses a bearing-guided roundover bit to ease the edges on each finger.



Punch the peg holes. To create the square mortises for the decorative ebony plugs, Peart uses a hollow punch, which he aligns with a clamped-on straightedge. After seating the punch with a single strike, drill through it to the desired depth. Afterward, strike the punch again to drive it to the full depth of the mortise.

■ Assemble the chest



One corner at a time. After finish-sanding the fingers and applying a dab of glue on each arm, Peert secures the joints with corner clamps, top and bottom (right). With this done, he drills a pilot hole in each finger and drives screws to lock the assembly together.

corners with corner clamps and then bringing the halves together. Because I'll be screwing these joints, I don't fully glue them. I put just a dab of glue on the inside of each finger where it will meet end grain in the gap.

Pre-drill into the fingers for a #6 by 1½-in. pan-head screw. Make sure the screw head is smaller than the 5/8-in.-dia. plug hole. Do not run screws into the top and bottom finger of the front and back panels—these fingers need to split. Check for square, but don't fret if it's a bit off. Final squaring will be done when the bottom is attached.

The base flangers are tablesawn

The chest sits on a decorative base. The corners of the base are also finger-jointed, and these larger joints are quick and easy to make using a dado set. I make the cuts with the workpiece clamped vertically in a crosscut sled and registered against a stop block. I position the stop block to let me complete the joint with a pair of mirrored cuts, flipping the workpiece between them. This approach works well only if all the pieces are exactly the same width, so take care when milling, and rest the setup on scrap.

Start by cutting the centered notch on the ends of the long sides. I do each one in two passes, flipping the board and leaving the stop block at the same setting. To cut the mating finger on the ends of the short sides, leave the dado set's height unchanged and reposition the stop block. Use the cut notch as a reference. It may take multiple adjustments to position the stop precisely. The joint should fit snugly with minimal friction.

Assemble and attach the base

Cut peg holes in the base pieces, and round the fingers with a 1/8-in. radius roundover bit. To visually suggest that the base fingers bear the chest's weight, I pillow their shape slightly by sanding with a folded piece of P80-grit paper. Use a shoe-shine motion until the roundovers are blended to a gentle arc. Finish-sand



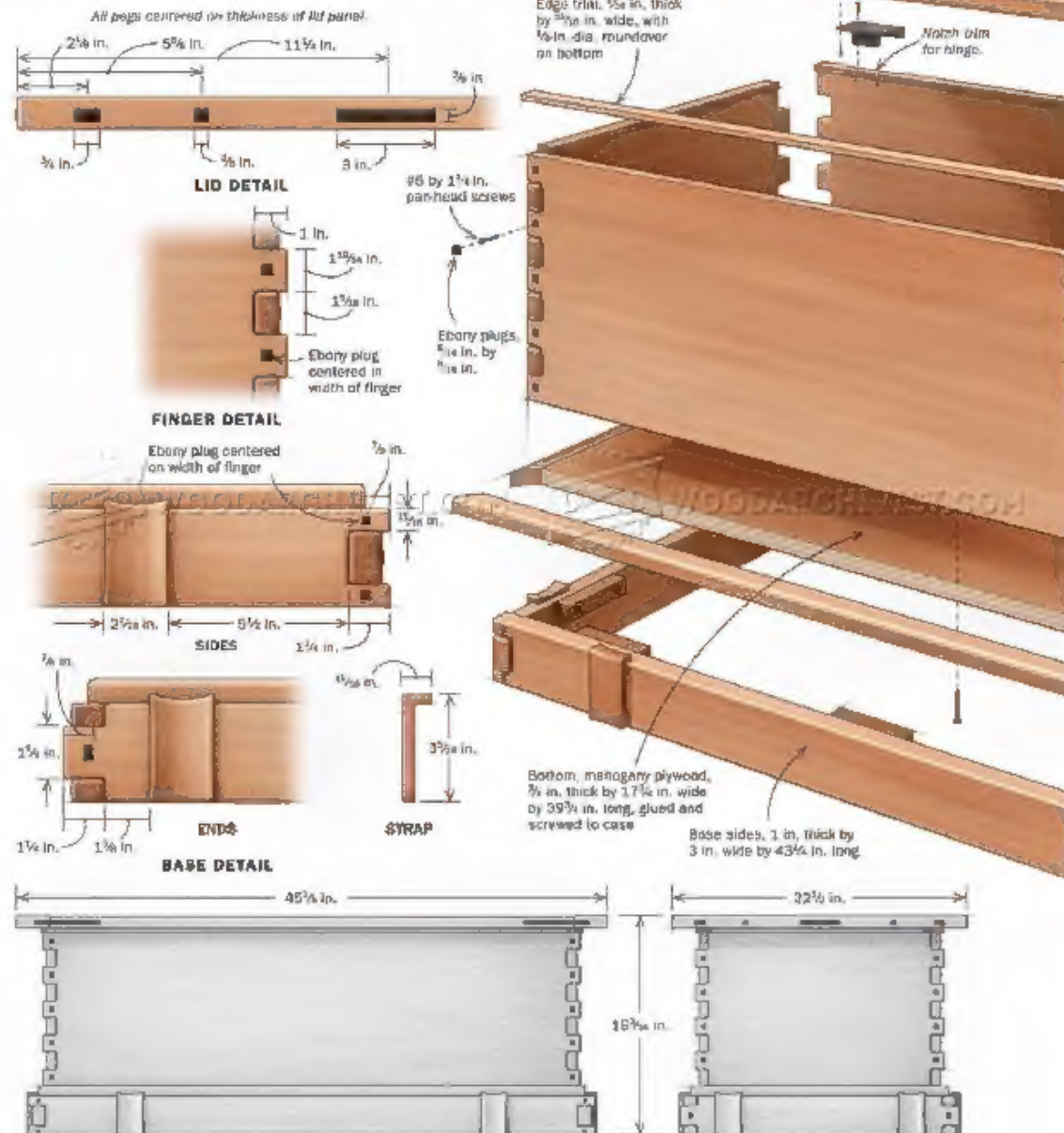
Build the base. Cut the large finger joints at the tablesaw with a dado set, then assemble the base into the case itself. Glue and screw the opposing corners, then bring the two halves together.

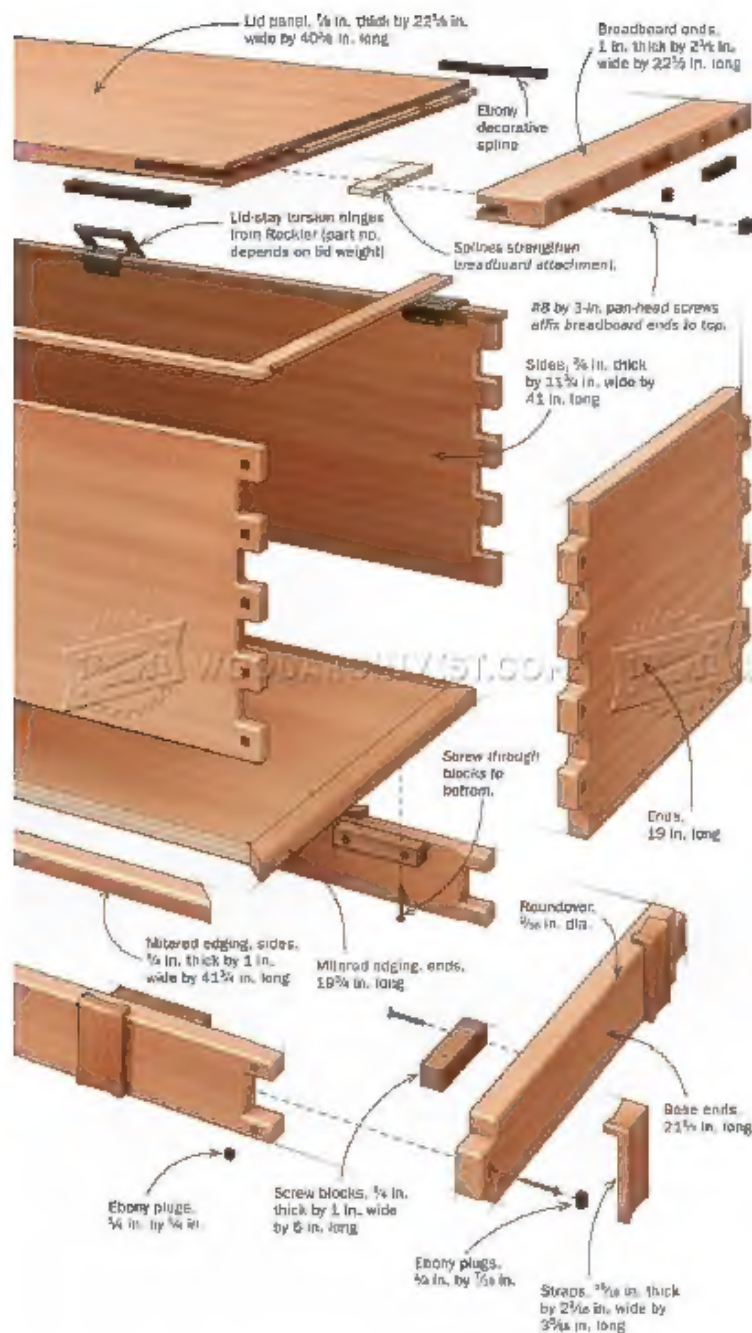


Add the bottom, then the base. With the case upside down, glue and screw the bottom to the case sides. Then set the base in position and screw it to the bottom using the screw blocks.

ARTS AND CRAFTS TREASURE CHEST

Peart's design for this blanket chest incorporates a number of Greene and Greene details, including the interlocking finger joinery at the case corners, the offset breadboard ends with ebony splines, and the faux leather straps that decorate the base.





the base parts to P220-grit, taking the end grain to P320-grit.

The base comes together much like the chest itself, apply a dab of glue inside each finger, then clamp. Pre-drill for a screw into the center finger only. Afterward, attach 10 screw blocks around the inner perimeter, setting them about $\frac{1}{2}$ in. below the top edge.

The bottom of the chest is plywood with a solid-wood edging. It is screwed from below to the case, and then the base is screwed to the bottom. To do this, start with the assembled case upside down on the bench. Make sure the case is square, then set the bottom in place and add the base, making sure the overhang is even all around. Trace the position of the screw blocks onto the bottom, and remove the base.

Secure the bottom temporarily by driving screws through it into two opposing corners of the case. Now predrill for the remaining screws. When this is done, back out the first two screws, and remove the bottom.

Now run a bead of glue along the bottom edge of the case. To reseat the bottom, drive the two screws again until they protrude about $\frac{1}{4}$ in. through the panel. With a helper, reposition the bottom using the points of the screws to find their corresponding holes. Drive the first two screws home, then the remaining screws. Now set the base back on the bottom, clamp it in place, and attach it with screws through the blocks.

Make the broadboard ends

Mill the lid parts to final size, making sure that the broadboard ends are $\frac{1}{4}$ in. thicker than the panel and about $\frac{1}{4}$ in. longer than the panel is wide. Use a three-wing slot-cutter to run a groove for the splines in the panel and broadboard ends. Cut the holes for the square and rectangular ebony plugs on the outer edge of the broadboard end, centering the holes on the thickness of the panel, not the broadboard end itself. Next, predrill for the screws in the center of the holes.

I use multiple splines, leaving gaps between them for the screws. Make sure the spline material is cut so its grain runs in the same direction as that of the panel. Before assembly, rout all the roundovers and sand the panel and broadboard ends. The splines are glued to the panel all the way across, but are only glued in the center 4 in. of the broadboard end. Now drive the screws.

I rout the mortise for the decorative ebony spline with a slot-cutter, referencing off the lid's bottom with the cutter centered on the panel. Square up the inside corners with a chisel. Mill and machine a piece of ebony to fit the cavity snugly and with enough excess width so it protrudes at least $\frac{1}{4}$ in. from the mortise. Relieve

■ Build the lid

BREADBOARD ENDS



Slot first. To hold the splines that align the breadboard ends, Peart routs slots in the end grain of the lid panel and in the mating edges of the breadboard ends.

the back of the spline on the breadboard end side so the panel can expand and contract without causing the ebony to bottom out. Glue the ebony in on the panel side only. Trim the spline with a $\frac{1}{2}$ -in. spiral straight bit. Make one pass with a $\frac{3}{4}$ -in. bearing, then switch to a $\frac{1}{8}$ -in. bearing and repeat. This will leave the ebony $\frac{1}{8}$ in. proud. Finally tape around the ebony to protect the surface, then the edges with a chisel, and sand with P220, P320, and P600-grit.

Fasten the straps

The final touch is a series of L-brackets that fit over the base and resemble leather straps stretched taut. Each bracket is shaped with a tablesaw curve on the front face and other curves created by spindle- and hand-sanding. I start with long mahogany blanks for the curve cut. I set the tablesaw blade about $\frac{1}{16}$ in. high and guide the stock between a shopmade pair of parallel



Multiple splines make room for screws. Peart leaves $\frac{1}{8}$ -in. gaps between the splines to provide clearance for the long screws that will help hold the breadboard end in place.



On to the ends. One clamp provides the pressure to secure both breadboard ends. To avoid problems with wood movement, apply glue along the whole length of the slot in the lid panel, but only the center few inches of the slot in the breadboard ends.

SEAT THE DECORATIVE SPLINE



Mortise mortises. When the breadboard ends come out of clamps, rout the mortise for the ebony splines that visually connect the ends to the panel. Peart uses a bearing-guided slot-cutter.



Fit the spline. Bandsaw the inner edge of the spline to roughly fit the stepped contour of the mortise bottom. With the spline pressed into place, pencil a line for bandsawing the outer edge to shape. Trim the excess, but leave it proud. A spiral bit with an extra-large bearing follows the irregular surface where the panel meets the breadboard end, trimming the spline uniformly proud.





Make the straps

Cut the cove. Using a push pad and push stick for safety, Peart guides the stock over the blade. Taking incremental cuts, he ends with the blade high enough to span most of the stock's width, leaving a narrow flat on each edge.



Cut the short leg of the L. The first step in creating the strap's L-shaped back is removing material at the top. Peart makes passes with a core-box router bit.



Finish the L. Peart makes a bandsaw cut along the strap's length to meet the opening created by the router.



Glue the straps in place. No screws are used to secure the L-shaped brackets.



Install the plugs. After shaping and fitting the plugs, dab with glue and tap home with a small plastic-headed mallet.

fences that straddle the blade at 45° (see top left photo, above). Once the cove is done, crosscut the individual pieces to length.

I cut the L-shape into the back in two steps. First, at the router table, I define the short leg of the L using a $\frac{3}{8}$ -in.-dia. core-box bit. This creates a $\frac{5}{16}$ -in. radius on the inside corner of the L that will mate snugly with the rounded top edge of the base. Make sure to back up the cut and take it in several light passes. Next, mark out for the curves in the sides and top of the strap, and shape them at the spindle sander. Cut the long leg of the L at the bandsaw. To clean up the inside corner, stretch a piece of 80-grit

adhesive-back sandpaper over a scrap with a $\frac{3}{8}$ -in. radius edge. Run the back of the strap over the paper until the transition is smooth. To make sure each strap fits perfectly on the base, I use another sandpaper trick. On the edge of the case bottom, where the strap will be applied, I stick a narrow strip of P80-grit adhesive sandpaper. In the same location, on the face of the base, I tape a piece of nonadhesive sandpaper, with its back side facing out.

Run the strap back and forth across the sandpaper until the paper stops cutting. The strap can now be glued in place. □

Darrell Peart makes furniture in Seattle.